

Tracts 1162

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# REPORT

ON THE

## STAMPING OUT

OF

## SMALL-POX IN CALCUTTA

BY

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# REPORT ON THE STAMPING OUT OF SMALL-POX IN CALCUTTA.

## SECTION I.

### POLICE REGULATIONS AGAINST SMALL-POX NECESSARY.

1. In the following report I have to call attention to the fact Argument for restrictions of Medical Police. that very much might be done by a judicious system of Medical Police to prevent the mortality attendant on an epidemic of small-pox, when that scourge is allowed to make head in Calcutta.

Public attention in Great Britain has been recently strongly directed to the advantages to be derived from restrictions being applied to those who are for the time *dangerous*, in consequence of laboring under disease which they can communicate to those around.

Sir James Simpson, President of the Public Health Section of the National Association for the Promotion of Social Science, has published an address on the subject, and it would be well for India, were a copy of it placed by Government in the hands of every medical man, and every civil administrator in the country.

In the following report, I shall have to follow some parallel lines of thought, and avail myself of illustrations similar to those which he has made use of, and it would be impossible to introduce the subject more fittingly than by taking the following quotation from the address referred to :—

“ The public mind has during the last two or three years become familiarised with the idea of ‘ stamping out’ a disease, in the instance of rinderpest—a malady apparently spreading in this country, as small-pox does, by contagion only; and every one well knows the perfect success with which this affection has been lately banished out of England, while it has also, by due care, been prevented spreading to Ireland and the Isle of Man. I believe the same principle

of stamping out could be as successfully applied to the extirpation of small-pox among us as it has been applied to the extirpation of rinderpest; but of course with great differences. The rinderpest has been stamped out by killing all the animals laboring under the disease; and in many instances all those animals of the same flock which had been exposed to the contagion of it, but which were not yet attacked by the malady. The mission, however, of the human physician is ever to save life, never to destroy it."

"And yet in accordance with this leading and divine principle, we could, in my opinion, as surely and as swiftly stamp out small-pox as rinderpest has been stamped out. For all that appears necessary for the purpose is simply the methodic temporary seclusion, segregation, or quarantine, of those affected with small-pox, until they have completely passed through the disease and lost the power of infecting and injuring others; the poleaxe was the chief and leading measure required to stamp out rinderpest. ISOLATION is the chief and leading measure required to stamp out small-pox."

2. In a special report on the Presidency vaccine establishment I laid before the Bengal Government in 1865 a table of the deaths from small-pox which had taken place in Calcutta since the year 1832. From this it can be seen that small-pox exists in Calcutta every year, and that in the thirty-four years included in the table it had assumed epidemic proportions on seven occasions. On each of these occasions the loss of life has been so terrific as to make one shrink from dwelling on it. The figures have already been published in the *Calcutta Gazette* of the 17th January 1866. This figured statement seems to have attracted but little attention. It is difficult to appreciate the full significance of abstract figures; perhaps with the aid of illustration I may be more fortunate in drawing public attention to the subject. To exemplify in what degree a small-pox epidemic means death, let me take as an extreme instance what occurred in the last small-pox epidemic.

3. In the months of February and March 1865, 2,957 people died of small-pox in the town of Calcutta,—in other words, close on 3,000 persons perished in these two months. In these two solitary months more people died of small-pox in this one city, than usually die of this disease in every city, town, village, and hamlet in the whole of England during a year.

Mortality from  
small-pox in  
Calcutta

During February  
and March 1865,  
exceeded that in  
England for a  
year.

4. The fearful carnage on board a ship of war during a naval engagement is one easy of comprehension. Naval appliances for wholesale slaughter are very perfect; with the enemy collected together in individual ships, every condition is secured to render destruction on a large scale very easy. When you search through history for an example of a large fleet having so suffered as to serve as a parallel for the death-rate from small-pox in Calcutta during the year 1865, not the most remote approach to such an illustration can be found in the whole annals of our naval warfare. By combining together any number of our most noted and bloody actions at sea, if you take only the killed into the account, it is difficult to secure such an illustration. To get over this difficulty if every wounded English sailor is added to the list of those killed, and you make a list of naval engagements, as of those at St. Vincent, Camperdown, the Nile, Trafalgar, Algiers, and Navarino, the total sum of killed and wounded combined may be compared against the loss of lives from small-pox in Calcutta in the one year referred to. Even then, however, the illustration falls considerably short of the full number required.

5. Again, the science of war ashore is by no means defective in its means for destroying human life; let us take an example of a war extending over a considerable period, and seek by having such an instance in mind to appreciate the terrible loss of life from small-pox. If we fix on a period of four years, the last years of the Peninsular war will furnish the example. During this eventful period, 8,899 British soldiers were killed in action or died of their wounds. If to the deaths from small-pox in the year 1865 just alluded to, we add those which took place in another year (1850), we get a total of 9,415.

Here we find that in this one city, 516 people died of this disease in two years, over and above the total numbers that the whole of the armies of Great Britain lost while engaged with a powerful enemy for double that time. Small-pox killed more people in Calcutta in two years, than all the shot, shell, and grape of the Artillery, all the sabres of the Cavalry, and all the bullets and bayonets of the Infantry could destroy, when used against large armies of English soldiers for four years.

6. Come now to civil life: accidents here occur which every now and again startle society from some horrible sacrifice of human life.

Comparison with naval actions.

Comparison with wars on land.

Comparison with accidents in civil life.

But analogy here completely fails to furnish even a remote equivalent catastrophe for the one with which I wish to compare it.

Take all the Railway accidents in India, add to them all those from falling buildings crushing their occupants in their ruins, throw into the account all explosions from gunpowder, and every accident that has caused a single death, and you can not get numerals, expressing a sufficiently large number of deaths, to compare against the thousands of deaths which have steadily continued to take place in Calcutta for as long a time as any record can be procured.

I have before me a tabulated statement of deaths from small-pox in Calcutta extending back to the year 1832. As no real illustration can be found to give an idea of the immense loss of life, let an impossible one be invented for the purpose. Boiler explosions every now and then occur, and when a few succeed one another at short intervals, they are much talked about. Suppose a series of boilers bursting every week, and let each of them kill fourteen persons, and you get a series of deaths, which if extended over a long number of years, would represent very nearly the fatal nature of small-pox in Calcutta. The table which I published included thirty-four years; the average weekly rate of mortality closely approaches to fourteen deaths. Fourteen people have been dying week after week from small-pox whose lives could easily have been saved. Had such a mortality been taking place for thirty-four years, as the result of boiler explosions, means would have been found to put a stop to it. The whole machinery of legislation would have been put in motion to avert such a terrible series of catastrophes, and nothing would have been considered too stringent as a legal enactment to prevent such an unheard of succession of fatal accidents. It is to guard against a precisely similar amount of loss of life that the "stamping out" of small-pox in Calcutta is a necessity. Only a slight amount of legislative assistance is required to allow this to be effectively done.

## SECTION II.

### POSSIBILITY OF STAMPING OUT SMALL-POX.

7. It is a fact known to all who engage themselves with such affairs that this mortality can be effectively put a stop to. In the language of those who write on such subjects it is called a *preventible mortality*. Small-pox is one of those diseases which propagates itself solely by

contagion. Where no contagion exists, no small-pox will be found. No ease of small-pox can be originated from any combination of circumstances; it can only arise from a germ derived from a previously existing case of the disease.

As soon would a student of Natural History believe that an elephant, or a banian tree, had sprung into existence without parentage, as the natural historian of disease, of the present day, would credit the assertion that a case of small-pox had been generated *de novo*.

8. To allow of small-pox spreading there are three conditions Three factors necessary to allow of small-pox becoming epidemic. essentially necessary—

1<sup>st</sup>.—Certain atmospheric and general states which favor the spread of small-pox.

2<sup>nd</sup>.—The existence of persons susceptible of receiving the contagion.

3<sup>rd</sup>.—The presence of persons or things capable of communicating the contagion.

Remove one or other of these effectively, and no extension of Theory of prevention. the disease can take place.

9. During the prevalence of certain states of the atmosphere small-pox cannot exist. While the Simoom lasts, the germs of small-pox feel the influence of its poisoned breath and die, and Egypt for the time is free from this and every similar form of pestilence. The Harmattan scorches and dries up the elements of small-pox contagion, and renders them as harmless as similarly desiccated white of egg. During the hot winds of the North-West Provinces, small-pox is either entirely or in great part incapable of propagating itself. In Bengal it receives a check in April, and in May and June it spreads under great disadvantages. If Caleutta is ever well-drained and clean, and if attention be directed to prevent over-crowding, small-pox may possibly, in obedience to certain of the laws controlling the febrile exanthemata, find the conditions less favorable to its spread. We cannot so affect the climate or so modify the hygienic conditions of the city as to make small-pox incapable of existing, and therefore, with the object of attaining this end, we have to place our reliance on controlling the other conditions under which only an epidemic of small-pox is a possibility.

Atmospheric and hygienic conditions affecting small-pox.

Facility of prevention.

10. Fortunately with regard to Calcutta at least, the carrying out of both of these requisites, to an extent capable of restraining the ravages of this disease to a minimum, is easily within our reach, provided the legislature will render legal the necessary restrictive measures. None of these enactments will fall heavily on individuals, nor, if judiciously and vigorously worked, will their incidence affect vexatiously any large numbers.

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### SECTION III.

#### REMOVAL OF THE SUSCEPTIBILITY OF RECEIVING THE DISEASE.

Repeated attacks of small-pox rare.

11. A large and extended experience over all the world, has shown that those who have once suffered from an attack of the disease, are but little susceptible to the contagion of small-pox, and but rarely undergo a second or third attack. It is also known, that those who have been artificially caused to go through the disease by means of inoculation with the small-pox virus, or by means of vaccination, possess the same immunity when exposed to the contagion of small-pox.

Present Vaccine Establishment capable of protecting Calcutta.

12. A Vaccine Establishment exists in Calcutta, and if the Government of Bengal sanctions a slight alteration of a defect in the working of the Department, the necessity for which I pointed out in 1865 and again in 1867, in consequence of its interfering most seriously with the efficiency of its operations, there is every reason to believe that it is capable of affording Calcutta all the protection against small-pox which, under the present state of Native feeling on the subject, and in the absence of vaccination being made compulsory, is capable of being provided for the city and suburbs.

In working it, two objects held in view.

13. In working this establishment two great objects are held in view—1<sup>st</sup>, to bring the whole population of the city, as far as possible, under the protective influence of vaccination ; 2<sup>nd</sup>, to vaccinate around every case of small-pox which occurs, and thus to throw an insusceptible zone of human beings as a protection around each centre of contagion, with the object of robbing the focus of its power of spreading the disease.

General vaccination.

14. Difficulties, which it would take pages even to enumerate, render it impossible that Calcutta can ever be thoroughly protected by vaccination, till a compulsory law has been passed. In my previous

public writings on this subject, I have expressed my intention of moving the legislature at some future time to pass such an Act. But I have stated, also, that for the present, I am not prepared to press for such a law, till all other means of having the people protected have been fairly pushed with energy and determination. Such a law is an inevitable necessity; but the people must first be educated by watching vaccination and learning about it, up to the standard of receiving such an act as by no means entailing serious hardship. Thus to accomplish the first of these objects I do not for the present ask for any special assistance from the Commissioner of Police.

15. With regard to the second, however, it is different, and without some assistance the object can be but very imperfectly attained. To vaccinate round a case of small-pox, pre-supposes that the occurrence of the case shall have become known. Experience has shown that the means at the disposal of the Vaccine Establishment to provide itself with this knowledge are most imperfect. Cases of small-pox occur of which nothing is heard; while others are brought to notice after so long an existence of the disease, that protective measures are only had resort to, at a time that much preventible mischief has taken place.

16. To enable the vaccinators to carry out this part of my instructions with any measure of success, it will be necessary that they be provided with the information that a case of small-pox exists in a given locality. The simplest way to effect this object seems to be, that it shall be rendered imperative that each case be notified at the nearest Police station, and that the Inspector of Police fill up and forward a printed form, detailing the name and residence of the person affected, to the Superintendent of Vaccination of the division of the town in which the case occurs. Several reasons might be adduced why the report should be forwarded through this channel; and no further Police assistance is desired, provided the notice of the occurrence of small-pox has been given early. The assistance asked under this head is very moderate. I will now mention a few instances in which I have been able to stop small-pox from spreading, by removing the susceptibility to the disease of those residing round it, in order to prevent objections being raised to the necessary powers being granted. With results so marked and striking, accruing every year from a systematic following out of the principle of depriving those surrounding small-pox cases of their

Vaccination  
round cases of  
small-pox.

Early notifi-  
cation of the  
occurrence of  
small-pox.

susceptibility of receiving the contagion, I trust no difficulty will be experienced in having it rendered compulsory to give early notification of each case of small-pox as it occurs, and providing for the imposition of a heavy penalty on the head of the house in every case in which he has failed to give (or cause to be given) the necessary information to the Police.

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## SECTION IV.

### INSTANCES OF SMALL-POX BEING "STAMPED OUT" BY REMOVING THE SUSCEPTIBILITY TO CONTAGION OF THOSE AROUND.

Stamping out  
In Calcutta.

17. In Calcutta, small-pox attacking a family has been in so very many instances prevented from spreading to the other members by vaccinating or re-vaccinating all in the house that no note is kept of such instances. Strangers bringing it to the town have also been prevented from spreading it in the same way.

Thus in December last a man arrived in Calcutta from Benares. He was suffering from the initiatory fever of small-pox, and on the second day after he reached Calcutta, the eruption appeared. He possessed no protection against small-pox, the disease was confluent, and he died of it. He remained for three days in one house and was then removed into another. Vaccination was performed in both of these houses, and in the neighbourhood of each, and not a single other case of small-pox occurred.

Again in January a man came to Calcutta from Ramkistopore, a village on the other side of the Hooghly. He, too, was laboring under the initiatory fever of small-pox, and the eruption came out in due time. The unprotected persons in his house, and immediately around it, were vaccinated, and he communicated the disease to no one.

So also in the next month, a woman arrived from the Jehanabad district, and stated that inoculation was being extensively practised in the village in which she had been residing. Small-pox attacked her soon after reaching Calcutta, the contagion having been received at her previous residence. She was prevented from being a source of danger to those around, by all coming within her influence being deprived of their receptive power, and again no one caught small-pox from her.

I know of other cases which have this year been imported into Calcutta and its immediate neighbourhood, but by being so dealt with have been rendered harmless.

18. To strengthen my ease, let me also briefly describe two instances in which small-pox has been "stamped out" within comparatively short distances of Calcutta during this year and the last. To begin with what took place this year. At the commencement of the hot weather of 1867 small-pox originated about forty-eight miles south of Calcutta, in the Diamond Harbour sub-division, owing to inoculation having been practised. Sankiberiah was its head quarters, the epidemic involving a large number of the surrounding villages. Early in 1868 vaccinators were sent there with orders to stop the epidemic at once. After January, with two exceptions, not a case occurred in the villages which had been thus invaded.

Owing to a fair, the disease was carried to a village at some distance. This village and all surrounding ones were vaccinated, and the conflagration again died out for want of fuel.

Seven thousand seven hundred and twenty-one people were successfully vaccinated by the gang of vaccinators sent to Sankiberiah, and the prompt and instant check to small-pox fully verified all my previous experience in regard to the facility of successfully stamping out the disease in this way.

19. So also in January 1867, small-pox broke out at Sookehur, about ten miles north of Calcutta, and the disease showed itself to be of a very malignant type.

Eight vaccinators rapidly protected fourteen hundred individuals in the neighbourhood of the outbreak. Those in whom the disease was incubating at the time of the vaccinators' arrival, were the only ones seized with small-pox, except two persons, both of whom died, and these would not consent on any terms to be vaccinated.

## SECTION V.

### GUARDING AGAINST THE DIFFUSION OF CONTAGION BY AFFECTED PERSONS.

20. The third element necessary to the spread of small-pox I state to be the existence of persons or of things capable of communicating the contagion. In a practical argument it may be accepted

that those only laboring under the disease, the clothing and conveyances used by them, or in general terms whatever has come into contact with their bodies, possesses the power of conveying to others an attack of the disease.

No restrictions of any sort are placed on those who thus for the time being are gifted with the most fatal powers of communicating disease and death to all who come within their influence. It is open to any one with small-pox to act in such a way that he may be the means of causing the death of hundreds of his fellow-beings. Cases have come within my own knowledge where individuals, insensible to the entreaties of those around, and deaf to the remonstrances of medical men, have refused to go to the small-pox hospital, or take other steps to avoid doing the infinite mischief which was sure to follow on their remaining in their own overcrowded dwellings and localities. In a city such as this, where small-pox is met with every year, it is very difficult to estimate the exact prejudicial influence exercised by individual cases of small-pox. But under other circumstances the results can be estimated with startling facility.

21. In his recent address to the Social Science Association, Sir James Simpson recounts an instance which will convince every one on this point:—

“In the narrative of the circumnavigation of the globe by the Austrian frigate *Novara*, in 1857—59, it is mentioned that in 1854 the English barque *Delta* arrived at Roankiddi Harbour, in the Island of Puynipet, with one of the crew affected with small-pox. There was some demur about supplying the infected ship with provisions, or allowing its crew to land for that purpose. In the silence of the night, the Captain of the *Delta* deposited the sick man on the shore with all his property, and at day-break made off under full sail. The sick sailor was carefully nursed and tended by the inhabitants of the Island, and recovered. But the Islanders were sadly repaid for their humanity and charity; for the small-pox speedily broke out with frightful violence among them; and almost every native was attacked. Of 5,000 inhabitants, forming the whole population of the Island, 3,000 succumbed to the virulence of the malady; and many of those that escaped with life showed upon their faces and bodies very visible traces of the effects of the disease. Of 30 white settlers, who had all previously been vaccinated, only one was

Illustration of  
danger from the  
mischief caused  
by the *Delta*.

attacked. In the gigantic naval fight of Trafalgar, one of the greatest battles ever fought at sea, between 1,600 and 1,700 of the British sailors fell. Thus, the one infected sailor, cruelly left by the ship *Delta* upon the shores of Puynipet, destroyed nearly twice as many human lives as were destroyed by all the artillery and musketry fired by the French fleet at Trafalgar."

22. There are few law-makers who, had they possessed the power of legislating so as to prevent the loss of these 3,000 lives, would not gladly have exerted their functions to prevent this sailor from becoming such a wholesale destroyer of human life. There are few restrictions, which in such a case as this, would be considered too great an interference with the liberty of the subject. In Calcutta, it is precisely a similar amount of mortality which I point out as preventible, only the death-rate I have chosen as my example extends over two months alone; the heavy mortality both before and after this period not being now dwelt upon. In Calcutta, it is true we can hardly hope to trace an epidemic to the influence of a single case. If we were so fortunately situated in this respect, as only to expect one sailor capable of spreading small-pox, to be left with us in any single year, it might be long before it was deemed requisite to ask for legislative protection. The case is different, however, when every railway, road, river, canal, and creek may any day introduce the disease among us.

Necessity for legislation.

23. Already the attention of the Bengal Government has been called to the fact that this city lies extremely open to invasions of small-pox, owing to the circumstance that the country around has never been protected by vaccination. For this reason local outbreaks of the disease in the vicinity are extremely frequent, and any one of these, places Calcutta in danger. Efforts are being now systematically carried on, with the view of protecting all the lines of communication, leaving for future years those districts which are more isolated in their position, and therefore less liable to influence Calcutta in this way, or to receive small-pox from it in times of epidemic visitation. One case has been quoted as an instance in which small-pox was brought from Benares within the last few months. Since that case occurred a Sikh soldier's wife also brought the disease with her from the same place. She was effectually isolated, and did not spread the disease. In both of these instances the scourge was brought to us by rail from a greater distance than 500 miles.

Vaccination along all routes of communication.

It only requires time and observation to be able to record such cases being brought from double or treble the distance of Benares.

It can hardly be hoped that the protective influence of vaccination will be carried to such distances within the life-time of those in Calcutta, whose interests are now affected, and some simple, yet effective, measure is urgently required, in the meantime, to guard against our periodic epidemics.

Principle of such a law not new.

24. Such an enforced temporary seclusion has its evident parallel in the removal of dangerous lunatics to an asylum or of those suffering from contagious disorders to a lock-hospital; for both of which Indian law already provides. It is but a short step to apply such a principle to those who are dangerous to others while they suffer from small-pox; while the danger to be guarded against is far greater than either of those against which the law already provides.

Isolation at sea.

25. There are very many recorded examples of the effective security which can be attained to by the isolation of those affected with small-pox. For obvious reasons, those occurring at sea are the most striking. Sir James Simpson relates that a shipful of Chinese, who were unprotected, were saved from the ravages of small-pox, which was brought on board by a European passenger, by the judicious seclusion of the affected person. Another very striking illustration is recorded by Dr. Currie, in which eight cases of small-pox appeared on board a Guineaman shortly after she had left the African Coast. Those affected were confined to the main-top, some twenty feet above the deck, none of the other passengers or crew took the disease.

Comparative facility of such quarantine ashore.

26. If judicious police regulations can effect so much among the crowded population of an emigrant or passenger ship, how much more easily can protection be provided for, under the more favorable circumstances at our disposal ashore.

What we require is legal authority to enforce isolation of those affected with the disease, and also restrictive measures to prevent them from touching anything while they are ill which is liable to be made use of by others.

Absence of all restrictions in Calcutta.

27. At present those covered with small-pox are allowed to sit or lie in the public streets. Even in our broadest thoroughfares, such a practice is most reprehensible, and when it takes place in a narrow lane

or crooked alley, the danger is much greater. During the last small-pox epidemic, I have very many times, while wandering about the infected localities, been appealed to for charity by beggars who were covered with small-pox crusts, and therefore possessed the power of conveying the disease in a very high degree; and I have seen children similarly situated as regards contagion, constituting the centre of a group of sympathising companions, who were quietly playing round them. I have seen the healthy child, as yet unprotected, being lulled to rest by its father, in close contact with the body of its mother, who was too near her death from small-pox, to care for anything on earth. It was a daily occurrence to see children, as yet free from the disease, made to sleep with those who had the disease in a bad form: and many are the instances in which I witnessed the firm protective power of vaccination under such circumstances. At almost any hour of the day there could be seen in the same confined hut those dying of small-pox, those more recently attacked, and those who had not yet got the disease.

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## SECTION VI.

### LEGAL ENACTMENT TO COMPEL ISOLATION.

28. To guard against such a wholesale neglect of precaution, <sup>Seclusion to be enforced.</sup> nothing short of legislative interference will avail.

29. Those affected by small pox must be compelled by law to keep <sup>In private houses.</sup> themselves separate. If their circumstances are such that they can do so at their own homes, such an indulgence may in most cases be allowed, on the production of medical evidence, in writing, to the effect that they are able to keep up an effective seclusion.

30. In the case of those who, from limited means, are unable to <sup>In hospital.</sup> comply with the necessary requirements, arrangements should be made to provide, at the cost of the community to be protected, for their isolation; and powers must be asked for to make it compulsory for such persons to accept the provision thus made for them.

31. In making such isolation in places set apart for the purpose <sup>Classification of patients.</sup> incumbent, it will be obviously right to make such a restriction fall as lightly as possible on those subjected to it. With this end in view, special reserved accommodation should be set apart in the small-pox hospital about to be built, to enable those who can afford to pay for it, to keep themselves separate from the public wards. Not only might a few

absolutely private wards be provided, but also a few small wards capable of holding three or four patients. These would allow for the classification of the patients to a certain degree, and with a graduated scale of payments, would prove a boon to those who, though they could not afford the expense of strictly private accommodation for themselves, would value being saved from a compulsory association with those less fortunate in life than they were.

**32.** Those of the sufferers who desired it, might have the consolation of being cared for by a relation or private attendant, in every case where the expense for food could be defrayed from private sources. Those who entered the hospital without the disease, however, would have to comply with the regulations of the hospital as regards previous protection from variola, and compulsory residence till legally discharged. Such a concession would tend to lessen the evils attendant on the admission of visitors to the hospital. Probably if a law existed to make such seclusion compulsory, in most cases where the necessity for it existed, those affected would comply with the law on any medical man advising them to this effect.

**33.** Provision will require to be made for the case of those who will not otherwise provide for their own isolation, or resort to the small-pox hospital. One of the simplest ways of doing this would be to provide that any Justice of the Peace or Magistrate could sign an order for removal to the hospital, on a certificate for its necessity which was signed by two medical men who had seen the patient. The Commissioner of Police might also have such a power of action, on the certificate of the Superintendent of Vaccination for that division of the town in which the patient resides, countersigned by the Superintendent General of Vaccination. The Superintendents of Vaccination are always medical men, and before signing such a certificate would have seen the person affected. The counter-signature of the Superintendent General of Vaccination might involve only a knowledge of the case, derived from the vaccinators, or others, by whom it might have been brought to notice.

## SECTION VII.

### PRECAUTIONS WITH REGARD TO FOMITES AND OTHER CARRIERS OF CONTAGION.

**34.** Another element which serves to propagate small-pox, will also require careful regulation,—whatever has come into contact with

Relations and  
private  
attendants.

Means for  
enforcing com-  
pliance.

Infected rooms,  
clothing, and  
bedding.

the bodies of those suffering from certain stages of the disease, may become the vehicle of disseminating the scourge.

All the bedding and clothing made use of by those labouring under the disease, or by those in close attendance on them, should be burned, or thoroughly disinfected, and the rooms which they have occupied while so affected should be purified in such way as the knowledge of the day should point out as the most effectual.

For the latter purpose, after thorough cleaning and ventilation, if the apartment were for some time kept filled with the fumes of burning sulphur, and subsequently white-washed, the most prominent indication would be fulfilled.

Any clothing or bedding worth preservation, after being boiled in water to remove impurities as far as possible, should be exposed to dry heat in special chambers, or thoroughly fumigated with sulphur. As in some continental hospitals, such disinfecting chambers might be provided at the small-pox hospital, so that patients and their friends might have their clothes disinfected before leaving the hospital ; while the public might also be allowed the privilege of the gratuitous disinfection of private clothing.

35. During the last epidemic I had to address the then Commissioner of Police on the subject of the public conveyances being used by those suffering from small-pox, and pointed out the necessity for the provision of special conveyances for such a purpose. The restrictions then imposed worked well, and might now be made to take a more permanent form.

36. The exercising of trades by those convalescent from small-pox, or in buildings where small-pox exists, calls for special prohibition.

I have seen in a washing establishment three small-pox cases being attended to by those engaged in getting up the clothes, and I have seen sheets, which might next day lie upon the beds of those liable to small-pox, used as screens to protect the sufferers labouring under this disease from the clouds of flies hovering over them.

I have also seen loaves of bread being handled by those capable of spreading the disease, and others have seen tailors and dressmakers endanger public safety by sending out infected garments, which have led to the death of those who wore them.

All of these, and similar infringements, of well known precautions, which are liable to endanger public health, call for special measures to guard against the possibility of their occurrence, for the future.

